DOCUMENT RESUME

ED 460 190 UD 034 637

AUTHOR Lonergan, James M.
TITLE Preparing Urban Teachers To Use Technology for Instruction. ERIC Digest.
INSTITUTION ERIC Clearinghouse on Urban Education, New York, NY.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
REPORT NO EDO-UD-01-7
ISSN ISSN-0889-8049
PUB DATE 2001-12-00
NOTE 4p.; Digest Number 168.
CONTRACT ED-99-CO-0035
AVAILABLE FROM ERIC Clearinghouse on Urban Education, Institute for Urban and Minority Education, Box 40, Teachers College, Columbia University, New York, NY 10027. Tel: 800-601-4868 (Toll Free). For full text: http://eric-web.tc.columbia.edu.
PUB TYPE ERIC Publications (071) -- ERIC Digests in Full Text (073)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Literacy; *Computer Uses in Education; Continuing Education; *Educational Technology; Elementary Secondary Education; *Faculty Development; Federal Aid; Federal Government; Higher Education; Inservice Teacher Education; Preservice Teacher Education; Teacher Improvement; Teaching Methods; Urban Schools
IDENTIFIERS ERIC Digests

ABSTRACT

This digest reviews the current state of teacher preparation for using educational technology to improve student performance and achievement, describing promising initiatives for improving teachers' technology training. Though most teachers have some familiarity with computers, many do not incorporate computer skills into classroom instruction. Educational technology, when used to develop higher-order thinking skills, can positively impact learning. However, teachers in low-income schools often teach about the computer itself and use computers for drill and practice, thus denying students the opportunity to progress to higher-order problem solving. Overall, teacher training does not provide future teachers with the kinds of experiences necessary to prepare them to use technology effectively in the classroom. Researchers recommend integrating technology training into the entire teacher education program rather than offering formal, stand-alone technology courses. Only four states require technology training for teacher recertification, so much remains to be done in this area. A Presidential Panel report recommends that teachers receive in-depth, sustained assistance to integrate computer use into the curriculum and reconcile new methods of technology-enhanced instruction with traditional methods. Various federal programs offer such training. The federal government also facilitates technology learning through support of online learning environments. (Contains 11 references.) (SM)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ERIC DIGEST

ED 460 190

Preparing Urban Teachers to Use Technology for Instruction

ERIC Digest

Number 168

EDO-UD-01-7

by

James M. Lonergan

December 2001

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ERIC Clearinghouse on Urban Education
Institute for Urban and Minority Education
Teachers College, Columbia University
New York, NY 10027

UD 034 637

BEST COPY AVAILABLE

ERIC Educational Resources Information Center

ERIC Clearinghouse on Urban Education

DIGEST

Number 168, December 2001 EDO-UD-01-7 ISSN 0889 8049

PREPARING URBAN TEACHERS TO USE TECHNOLOGY FOR INSTRUCTION

Since the early 1990s, the gap in the availability of computers and Internet access between schools in affluent and poor areas has decreased dramatically. While most schools now have computer and Internet access, many teachers still have difficulty with incorporating this new technology into instruction. This is particularly true in poorer urban school districts, where funding and time for teacher technology training are often lacking.

This digest reviews the current state of teacher preparation for using educational technology to improve student performance and achievement. It also describes some promising initiatives for improving teacher technology training.

Technology Skills of Inservice Teachers

Most teachers have some familiarity with computers and are able to use a variety of computer software. Further, 94 percent of all respondents to a recent National Education Association (2000) survey, and 99 percent of the respondents under 35, are able to search the Internet.

Many teachers do not know how to incorporate computer skills into classroom instruction, however, according to a National Center for Education Statistics report (U.S. Department of Education, 2000a). Almost two-thirds of all teachers reported feeling not at all prepared or only somewhat prepared to use technology in their teaching, but younger teachers, who grew up with computers and were educated with them, indicated they felt better prepared to use technology than their more experienced colleagues. Not surprisingly, teachers who reported feeling better prepared to use technology were more likely to make use of it than those who indicated they felt less prepared.

The Use of Technology in Low-Income Schools

Educational technology, when used to develop higher-order thinking skills, can have a positive impact on learning, according to a study by the Educational Testing Service (Wenglinsky, 1998). But teachers in low-income schools often teach about the computer itself, and use computers for drill and practice, rather than for research, inquiry, and communication, as is often the practice in wealthier schools. This strategy is based on the assumption that children who lack basic skills need to learn them through drill before they can move on to higher-order thinking activities. Unfortunately, these children often do not get the opportunity to progress to higher-order problem solving. Furthermore, research has shown that in real-life situations lower-order and higher-order thinking are not separated; therefore, effective teaching should combine the two (President's Committee, 1997).

Technology Training in Teacher Education Programs

Current Practice

A recent study by the Milken Exchange on Education Technology (1999) and the International Society for Technology in Education found that, "in general, teacher-training programs do not provide future teachers with the kinds of experiences necessary to prepare them to use technology effectively in their classrooms." It emphasized that since the United States will need a projected 2.2 million new teachers over the next decade, "the time to examine and re-engineer our teacher preparation programs is now."

The study also pointed out several other deficiencies prevalent in teacher education programs (Milken Exchange, 1999):

- Approximately one-third of teacher education programs are limited by their information technology facilities.
- Most teacher training program faculty do not model the use of technology in teaching.
- Most teacher training programs do not have a written, funded, regularly updated technology plan.
- Most student teachers do not routinely use technology in their field experience and do not work with teachers who can advise them on its use, although information technology is available in the K-12 classrooms where student teachers get their field experience.

Recommendations for Improvement

The most important recommendation of the Milken Exchange study is to integrate technology training into the entire teacher education program, since instructional time spent in other classes, such as methods and curriculum courses, is much more useful for educating student teachers about computer use than are formal stand-alone technology courses. The study also recommends that the following strategies be incorporated into teacher training programs (1999):

- Focus institutional technology planning on the integration of technology in teaching and learning, not only on facilities.
- Provide student teachers with more opportunities to apply technology during field experience.
- Give school of education faculty the tools, incentives, and professional development they need to integrate technology into the teacher training curriculum.

The Web-Based Education Commission, established by Congress in 1997, recommends making professional development in technology a high priority (U.S. Department of Education, 2000b). It cites several initiatives by Congress, the states, universities, professional organizations, and the business community which support intensive technology training for teachers:

- The Higher Education Act Amendments, passed by Congress and signed into law in 1998, hold institutions of higher education accountable for preparing teachers who are highly qualified not only in academic content areas but also in the effective use of technology in the classroom.
- The majority of states—42—now require that teachers demonstrate proficiency in technology as one component for receiving certification.

- The National Council for Accreditation of Teacher Education (NCATE), working with the International Society for Technology in Education, is incorporating technology standards into its accreditation process for teacher education colleges. While this effort is promising, NCATE is responsible for accrediting only 38 percent of the 1,300 teacher preparation programs in the United States.
- The CEO Forum developed a special StaR (School Technology and Readiness) self-assessment tool for schools and colleges of education. Over 240 institutions have undergone self-assessments to bring their programs from "low tech," with little or no technology use, to "target tech," the model for innovative use of educational technology.

Continuing Education for Inservice Teachers

Only four states require technology training for recertification of teachers, so much remains to be done in this area (Trotter, 1999). The CEO Forum on Education and Technology (1999) recommends the following:

- Every state should develop standards for effective continuing education on integrating technology into the curriculum.
- Schools and districts should develop technology plans that include professional development in the use of technology and proficiency standards.
- Every teacher and administrator should have access to information technology.
- Resources for technology-related professional development should be increased.
- Every professional development program should integrate technology into its curriculum.

The Federal Office of Technology Assessment (1995) recommended that school districts devote at least 30 percent of their technology budgets to teacher training and support. However, only 6 percent of the $4.2 billion that K-12 schools spent on technology in 1996 went towards training (U.S. Dept. Of Education, 2000b). That figure increased to 17 percent for public school teacher technology training for the 1999-2000 school year, but it is still far below the recommended amount (Market Data Retrieval, 1999).

Government Support for Teacher Technology Training

A Presidential Panel report recommended that teachers need in-depth, sustained assistance to integrate computer use into the curriculum and reconcile new methods of instruction which use technology extensively with traditional methods (President's Committee, 1997). One program offering such training is the Teacher Led Technology Challenge (TLTC) in Berkeley, California, funded by the U.S. Department of Education's Technology Innovation Challenge Grant Program; it provides teachers with extensive support, tools, and professional development. A Classroom Technology Integration Specialist in each school plans and consults with teachers regularly during times set aside for this purpose. The TLTC was designed for adaptation by other school systems serving predominantly low-income and racially diverse populations (U.S. Dept. Of Education, 2000b).

The U.S. Department of Education's Preparing Tomorrow's Teachers to Use Technology (PT3) Program, begun in 1999, offers grants to support teacher preparation improvements—mostly in low-income communities, rural areas, and among minority groups and special populations. In its first two fiscal years the program has made a total of $300 million available to teacher preparation institutions. The funds will help them develop programs that prepare prospective teachers to use technology for improved instructional practices and student learning opportunities. By 2004, over one million teachers will have received technology training as a result of these grants (see http://pt3.org/).

The Federal government is also facilitating technology learning through support of online learning environments, since the Internet can help isolated teachers make new connections and expand access to new resources. Specifically, the Internet can provide collaborative learning environments where teachers reflect on their practice, share expertise, and build a common understanding of new instructional approaches, by engaging with colleagues and experts in the field. An example is the Maryland Electronic Learning Community, also funded by the Technology Innovation Challenge Grant Program, which uses email, videoconferencing, digitized video, and Internet resources to support curriculum and professional development (Riel & Fulton, 2001; see http://www.learn.umd.edu/ for a description). Two among many online sites where teachers and students can engage in collaborative learning and reflection are TAPPED IN (www.tappedin.sri.com) and the International Education and Resource Network (www.iearn.org).

—James M. Lonergan
Teachers College, Columbia University

References

The CEO Forum on Education and Technology. (1999). *Professional development: A link to better learning*. Washington, DC: Author. (ED 428 747)
Available: http://www.ceoforum.org/reports.cfm

Market Data Retrieval. (1999). *New teachers and technology: Examining perceptions, habits, and professional development experiences*. Shelton, CT: Author. (ED 438 787)

Milken Exchange on Education Technology. (1999). *Will new teachers be prepared to teach in a digital age? A national survey on information technology in teacher education*. Santa Monica, CA: Author. (ED 428 072)
Available: http://www.mff.org/publications/

National Education Association. (2000). *Annual* NEA Today *readership survey*. Washington, DC: Author. Available: http://www.nea.org

Office of Technology Assessment, U.S. Congress. (1995). *Teachers and technology: Making the connection*. Washington, DC: Author. (ED 386 155) Available:
http://www.wws.princeton.edu/~ota/disk1/1995/9541.html

President's Committee of Advisors on Science and Technology, Panel on Educational Technology. (1997). *Report to the President on the use of technology to strengthen K-12 education in the United States*. Washington, DC: Executive Office of the President of the United States. (ED 410 950) Avail.: http://www.ostp.gov/PCAST/k-12ed.html

Riel, M., & Fulton, K., (2001, March). The role of technology in supporting learning communities. *Phi Delta Kappan, 82*(7), 518-523. (EJ 623 015)

Trotter, A. (1999, September 23). Preparing teachers for the digital age: Technology counts '99. *Education Week, XIX*(4), pp. 37-42.

U.S. Department of Education, National Center for Education Statistics. (2000a). *Teachers' tools for the 21st Century. A report on teachers' use of technology*. Washington, DC: Author. (ED 444 599)
Avail.: http://nces.ed.gov/spider/webspider/2000102.shtml

U.S. Department of Education, Web-Based Education Commission. (2000b). *The power of the Internet for learning: Moving from Promise to Practice*. Washington, DC: Author. (ED 444 603) Available:
http://www.ed.gov/offices/AC/WBEC/FinalReport/

Wenglinsky, H. *Does it compute*? (1998). Princeton, NJ: Educational Testing Service. (ED 425 191)

This Digest was developed by the ERIC Clearinghouse on Urban Education, with funding from the Office of Educational Research and Improvement, U.S. Department of Education, under contract no. ED-99-CO-0035. The opinions in this Digest do not necessarily reflect the position or policies of OERI or the Department of Education.

ERIC Clearinghouse on Urban Education, Institute for Urban and Minority Education, Box 40, Teachers College, Columbia University, New York, NY 10027, (800) 601-4868. Erwin Flaxman, Director. Wendy Schwartz, Managing Editor.
Web site: http://eric-web.tc.columbia.edu